AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A cathode for an electron tube, comprising:

a base metal; and

an electron emissive material layer attached on said base metal, said electron emissive layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be a maximum of not more than 8 microns.

2. (Previously Presented) The cathode of claim 1, further comprised of the surface roughness distance being a maximum of not more than 5 microns.

3. (Previously Presented) A cathode for an electron tube, comprising:

a base metal; and

an electron emissive material layer attached on said base metal, said electron emissive layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be less than or equal to 8 microns,

further comprised of the density of said electron emissive material layer being 2 to 5 mg/mm^3.

4. (Previously Presented) The cathode of claim 1, further comprised of the thickness of the electron emissive material layer being from 20 to less than 70 microns.

5. (Currently Amended) The cathode of claim 1, further comprised of said electron emissive material layer being attached on said base metal by one method selected from the group consisting ~~essentially~~ of printing and deposition, and said electron emissive material layer having a maximum surface roughness being from 5 to 8 microns.

6. (Currently Amended) The cathode of claim 1, further comprised of said electron emissive material layer being attached to said base metal by a screen printing method, and said electron emissive material layer including a plurality of surface roughness values and with a maximum value of surface roughness being 5 microns.

7. (Currently Amended) A method of preparing the cathode for an electron tube of claim 3, the method comprising the steps of:

preparing a paste comprising 40 to 60% by weight carbonate powder, 30 to 50% by weight solvent, and 1 to 10% by weight binder, based on the total weight of said paste; and

attaching said paste on said base metal using one member selected from the group consisting

~~essentially~~ of screen printing, painting and roll coating.

8. (Currently Amended) The method of claim 7, further comprised of said solvent being one member selected from the group consisting ~~essentially~~ of terpinol, butyl carbitol acetate, and a combination of terpinol and butyl carbitol acetate.

9. (Currently Amended) The method of claim 7, further comprised of said binder being one member selected from the group consisting ~~essentially~~ of nitrocellulose and ethylcellulose.

10. (Withdrawn) A method of a cathode for an electron tube, said cathode comprising of a base metal, and an electron emissive material layer attached on said base metal, said method comprising the steps of:

mixing carbonate powder, solvent, and binder to form a paste;

applying said paste on a base metal of a cathode for an electron tube to form an electron emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;

controlling a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer to be a maximum of not more than 8 microns.

11. (Withdrawn) The method of claim 10, with said step of controlling the surface roughness further comprised of the surface roughness being controlled to be a maximum of not more than 5

microns.

12. (Withdrawn) The method of claim 10, with said step of mixing carbonate powder, solvent, and binder to form a paste, further comprised of carbonate powder being 40 to 60% by weight carbonate powder, 30 to 50% by weight solvent, and 1 to 10% by weight binder, based on the total weight of said paste.

13. (Withdrawn) The method of claim 10, further comprised of said solvent being one member selected from the group consisting essentially of terpinol, butyl carbitol acetate, and a combination of terpinol and butyl carbitol acetate.

14. (Withdrawn) The method of claim 10, further comprised of said binder being one member selected from the group consisting of nitrocellulose and ethylcellulose.

15. (Withdrawn) The method of claim 10, further comprising the step of controlling the thickness of the electron emissive layer to be 20 to 70 microns.

16. (Withdrawn) The method of claim 10, with said step of applying said paste on said base metal further comprising of apply said paste by one member selected from the group consisting of printing and deposition.

17. (Withdrawn) The method of claim 10, with said step of applying said paste on said base metal further comprising of apply said paste by screen printing and said step of controlling the surface roughness by screen printing.

Claims 18-20 (Cancelled)

Claims 21-32 (Cancelled)

33. (Currently Amended) A cathode for an electron tube, comprising:

a base metal; and

an electron emissive material layer attached on said base metal, said electron emissive layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be a maximum of not more than 8 microns,

~~The cathode of claim 1,~~ with said electron emissive material layer comprising of oxide particles having a uniform size.

34. (Currently Amended) A cathode for an electron tube, comprising:

a base metal; and

an electron emissive material layer attached on said base metal, said electron emissive layer including a surface roughness measured from a distance between a highest point and a lowest point

of the surface of said electron emissive material layer, being controlled to be a maximum of not more than 8 microns,

~~The cathode of claim 1,~~ with said electron emissive material layer comprising of oxide particles having a uniform size of the pores between the oxide particles and the pores between the oxide particles being no greater than 8 microns.

35. (Previously Presented) A cathode for an electron tube, comprising:

a base metal; and

an electron emissive material layer attached on said base metal, said electron emissive layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be not more than 8 microns,

with said electron emissive material layer comprising of oxide particles having the pores between the oxide particles being no greater than 8 microns.

36. (Previously Presented) The cathode of claim 35, with said electron emissive material layer comprising of oxide particles having the pores between the oxide particles being no greater than 5 microns.

37. (Previously Presented) The cathode of claim 35, further comprised of a uniform distribution of the sizes of the oxide particles and pores.

Claim 38 (Cancelled)

39. (Previously Presented) The cathode of claim 3, further comprised of said electron emissive material layer being attached to said base metal by a member selected from a group consisting of printing and deposition.

40. (Previously Presented) The cathode of claim 3, further comprised of said electron emissive material layer being attached to said base metal by a member selected from a group consisting of screen printing, painting and roll coating.

41. (Previously Presented) The cathode of claim 3, further comprised of said electron emissive material layer being applied to said base metal by applying a predetermined pressure.

42. (Currently Amended) A cathode for an electron tube, comprising:

an electron emissive material layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being limited to be a maximum value of ~~not greater than~~ 8 microns.

43. (Currently Amended) The cathode of claim 42, further comprised of the surface roughness distance being ~~no more than~~ a maximum value of 5 microns.

44. (Previously Presented) A cathode for an electron tube, comprising:

an electron emissive material layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be not greater than 8 microns,

further comprised of the density of said electron emissive material layer being 2 to 5 mg/mm^3.

45. (Previously Presented) A cathode for an electron tube, comprising:

an electron emissive material layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be not greater than 8 microns,

with said electron emissive material layer comprising of oxide particles having the pores between the oxide particles being no greater than 8 microns.

46. (Previously Presented) A cathode for an electron tube, comprising:

an electron emissive material layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being controlled to be not greater than 8 microns,

with said electron emissive material layer comprising of oxide particles having the pores between the oxide particles being no greater than 5 microns.

47. (Currently Amended) A cathode for an electron tube, comprising:

an electron emissive material layer including a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer, being limited to be a maximum of not greater than 8 microns,

~~The cathode of claim 42,~~ further comprised of a uniform distribution of the sizes of the oxide particles and pores.

48. (Previously Presented) The cathode of claim 45, with said electron emissive material layer comprising of a carbonate powder, a solvent and a binder mixed with said carbonate powder and said solvent, the carbonate particles having a size of 5 to 7 microns being separately distributed without aggregation.

49. (Previously Presented) A method of the cathode for the electron tube of claim 35, said method comprising the steps of:

mixing carbonate powder, solvent, and binder to form a paste;

applying said paste on a base metal of a cathode for an electron tube to form an electron emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;

controlling a surface roughness measured from a distance between a highest point and a lowest point of the surface of said electron emissive material layer to be less than or equal to 8 microns.

50. (Withdrawn) The method of claim10, further comprised of forming the density of said electron emissive material layer being 2 to 5 mg/mm^3.

51. (Withdrawn) The method of claim 10, further comprising of forming said electron emissive material layer comprising of oxide particles having the pores between the oxide particles being no greater than 8 microns.